

09/887,625

=> d his

(FILE 'HOME' ENTERED AT 06:06:59 ON 29 FEB 2004)

FILE 'BIOSIS, MEDLINE, CAPLUS, WPIDS, USPATFULL' ENTERED AT 06:08:50 ON
29 FEB 2004

L1 249 S DETECT? (5A) PLUR? (4A) NUCLEIC ACID?
L2 3 S L1 AND ELECTROCONDUCT?
L3 3 S L2 AND LABEL?
L4 3 S L3 AND ARRAY
L5 67 S L1 AND ELECTRO? (10A) ARRAY?
L6 65 S L5 NOT L4
L7 65 DUP REM L6 (0 DUPLICATES REMOVED)
L8 61 S L7 AND RATIO
L9 7 S L8 AND OXIDATION (2A) REDUCTION

=> s l1 and hybridization

L10 233 L1 AND HYBRIDIZATION

=> s l10 and redox

L11 48 L10 AND REDOX

=> s l11 not l9

L12 48 L11 NOT L9

=> dup rem l12

PROCESSING COMPLETED FOR L12

L13 48 DUP REM L12 (0 DUPLICATES REMOVED)

=> s l13 not l4

L14 47 L13 NOT L4

=> s l14 and array?

L15 46 L14 AND ARRAY?

=> s l15 and electrode?

L16 33 L15 AND ELECTRODE?

=> s l16 and potential?

L17 33 L16 AND POTENTIAL?

=> d l17 bib abs 1-33

L17 ANSWER 1 OF 33 USPATFULL on STN

AN 2003:294281 USPATFULL

TI Nanoparticles having oligonucleotides attached thereto and uses therefor

IN Park, So-Jung, Austin, TX, UNITED STATES

Taton, Thomas Andrew, Little Canada, MN, UNITED STATES

Mirkin, Chad A., Wilmette, IL, UNITED STATES

PI US 2003207296 A1 20031106

AI US 2002-266983 A1 20021008 (10)

RLI Continuation-in-part of Ser. No. US 2001-8978, filed on 7 Dec 2001,
PENDING Continuation-in-part of Ser. No. US 2001-927777, filed on 10 Aug
2001, PENDING Continuation-in-part of Ser. No. US 2001-820279, filed on
28 Mar 2001, PENDING Continuation-in-part of Ser. No. US 2001-760500,
filed on 12 Jan 2001, PENDING Continuation-in-part of Ser. No. US
2000-603830, filed on 26 Jun 2000, GRANTED, Pat. No. US 6506564
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, PENDING

09567863

PRAI US 2001-327864P 20011009 (60)
US 2000-254418P 20001208 (60)
US 2000-255236P 20001211 (60)
US 2001-282640P 20010409 (60)
US 2000-224631P 20000811 (60)
US 2000-192699P 20000328 (60)
US 2000-254392P 20001208 (60)
US 2000-255235P 20001211 (60)
US 2000-176409P 20000113 (60)
US 2000-213906P 20000626 (60)
US 2000-200161P 20000426 (60)
US 1996-31809P 19960729 (60)

DT Utility

FS APPLICATION

LREP MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE
3200, CHICAGO, IL, 60606

CLMN Number of Claims: 677

ECL Exemplary Claim: 1

DRWN 75 Drawing Page(s)

LN.CNT 12981

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 2 OF 33 USPATFULL on STN

AN 2003:257732 USPATFULL

TI Nanoparticles having oligonucleotides attached thereto and uses therefor

IN Mirkin, Chad A., Wilmette, IL, UNITED STATES

Letsinger, Robert L., Bloomington, IN, UNITED STATES

Mucic, Robert C., Glendale, CA, UNITED STATES

Storhoff, James J., Evanston, IL, UNITED STATES

Elghanian, Robert, Skokie, IL, UNITED STATES

Taton, Thomas Andrew, Little Canada, MN, UNITED STATES

PA Nanosphere, Inc. (U.S. corporation)

PI US 2003180783 A1 20030925

AI US 2003-410324 A1 20030409 (10)

RLI Continuation of Ser. No. US 2001-961949, filed on 20 Sep 2001, GRANTED,
Pat. No. US 6582921 Continuation of Ser. No. US 2000-603830, filed on 26
Jun 2000, GRANTED, Pat. No. US 6506564 Continuation-in-part of Ser. No.
US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944
Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999,
ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21
Jul 1997, PENDING

PRAI US 1996-31809P 19960729 (60)

DT Utility

FS APPLICATION

LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.

09567863

Wacker Drive, Chicago, IL, 60606

CLMN Number of Claims: 431

ECL Exemplary Claim: 1

DRWN 31 Drawing Page(s)

LN.CNT 8062

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 3 OF 33 USPATFULL on STN

AN 2003:213644 USPATFULL

TI Nanoparticles having oligonucleotides attached thereto and uses therefor

IN Mirkin, Chad A., Wilmette, IL, UNITED STATES

Letsinger, Robert L., Wilmette, IL, UNITED STATES

Mucic, Robert C., Glendale, CA, UNITED STATES

Storhoff, James J., Evanston, IL, UNITED STATES

Elghanian, Robert, Skokie, IL, UNITED STATES

Taton, Thomas A., Little Canada, MN, UNITED STATES

PA Nanosphere, Inc. (U.S. corporation)

PI US 2003148282 A1 20030807

AI US 2001-976968 A1 20011012 (9)

RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, GRANTED, Pat. No. US 6506564 Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, PENDING

PRAI US 1996-31809P 19960729 (60)

US 2000-200161P 20000426 (60)

DT Utility

FS APPLICATION

LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.

Wacker Drive, Chicago, IL, 60606

CLMN Number of Claims: 431

ECL Exemplary Claim: 1

DRWN 46 Drawing Page(s)

LN.CNT 8043

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further

09567863

provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 4 OF 33 USPATFULL on STN
AN 2003:207180 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2003143538 A1 20030731
AI US 2001-975059 A1 20011011 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, GRANTED,
Pat. No. US 6506564 Continuation-in-part of Ser. No. US 1999-344667,
filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part
of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED
Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997,
PENDING
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.
Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8062

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 5 OF 33 USPATFULL on STN
AN 2003:180699 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES

09567863

Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2003124528 A1 20030703
AI US 2001-976601 A1 20011012 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.
Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8060
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods
comprise contacting the nucleic acid with one or more types of particles
having oligonucleotides attached thereto. In one embodiment of the
method, the oligonucleotides are attached to nanoparticles and have
sequences complementary to portions of the sequence of the nucleic acid.
A detectable change (preferably a color change) is brought about as a
result of the **hybridization** of the oligonucleotides on the
nanoparticles to the nucleic acid. The invention also provides
compositions and kits comprising particles. The invention further
provides methods of synthesizing unique nanoparticle-oligonucleotide
conjugates, the conjugates produced by the methods, and methods of using
the conjugates. In addition, the invention provides nanomaterials and
nanostructures comprising nanoparticles and methods of nanofabrication
utilizing nanoparticles. Finally, the invention provides a method of
separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 6 OF 33 USPATFULL on STN
AN 2003:127030 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Taton, Thomas Andrew, Little Canada, MN, UNITED STATES
Lu, Gang, Mt Prospect, IL, UNITED STATES
PI US 2003087242 A1 20030508
AI US 2001-8978 A1 20011207 (10)
RLI Continuation-in-part of Ser. No. US 2001-927777, filed on 10 Aug 2001,
PENDING Continuation-in-part of Ser. No. US 2001-820279, filed on 28 Mar
2001, PENDING Continuation-in-part of Ser. No. US 2001-760500, filed on
12 Jan 2001, PENDING Continuation-in-part of Ser. No. US 2000-603830,
filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US
1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944
Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999,
ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21
Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-176409P 20000113 (60)
US 2000-192699P 20000328 (60)
US 2000-200161P 20000426 (60)

09567863

US 2000-213906P 20000626 (60)
US 2000-224631P 20000811 (60)
US 2000-254392P 20001208 (60)
US 2000-254418P 20001208 (60)
US 2000-255235P 20001211 (60)
US 2000-255236P 20001211 (60)
US 2001-282640P 20010409 (60)

DT Utility

FS APPLICATION

LREP MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE
3200, CHICAGO, IL, 60606

CLMN Number of Claims: 626

ECL Exemplary Claim: 1

DRWN 71 Drawing Page(s)

LN.CNT 12308

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 7 OF 33 USPATFULL on STN

AN 2003:99517 USPATFULL

TI Nanoparticles having oligonucleotides attached thereto and uses therefor

IN Mirkin, Chad A., Wilmette, IL, UNITED STATES

Letsinger, Robert L., Wilmette, IL, UNITED STATES

Mucic, Robert C., Glendale, CA, UNITED STATES

Storhoff, James J., Evanston, IL, UNITED STATES

Elghanian, Robert, Skokie, IL, UNITED STATES

Taton, Thomas A., Little Canada, MN, UNITED STATES

PA Nanosphere, Inc. (U.S. corporation)

PI US 2003068622 A1 20030410

AI US 2001-976863 A1 20011012 (9)

RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN

PRAI US 1996-31809P 19960729 (60)

US 2000-200161P 20000426 (60)

DT Utility

FS APPLICATION

LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.
Wacker Drive, Chicago, IL, 60606

CLMN Number of Claims: 431

ECL Exemplary Claim: 1

DRWN 46 Drawing Page(s)

LN.CNT 8059

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

09567863

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 8 OF 33 USPATFULL on STN

AN 2003:86172 USPATFULL

TI Nanoparticles having oligonucleotides attached thereto and uses therefor

IN Mirkin, Chad A., Wilmette, IL, UNITED STATES

Letsinger, Robert L., Wilmette, IL, UNITED STATES

Mucic, Robert C., Glendale, CA, UNITED STATES

Storhoff, James J., Evanston, IL, UNITED STATES

Elghanian, Robert, Skokie, IL, UNITED STATES

Taton, Thomas A., Little Canada, MN, UNITED STATES

PA Nanosphere, Inc. (U.S. corporation)

PI US 2003059777 A1 20030327

US 6645721 B2 20031111

AI US 2001-957313 A1 20010920 (9)

RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN

PRAI US 1996-31809P 19960729 (60)

US 2000-200161P 20000426 (60)

DT Utility

FS APPLICATION

LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.
Wacker Drive, Chicago, IL, 60606

CLMN Number of Claims: 431

ECL Exemplary Claim: 1

DRWN 46 Drawing Page(s)

LN.CNT 8060

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

09567863

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 9 OF 33 USPATFULL on STN
AN 2003:78438 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2003054358 A1 20030320
AI US 2001-975376 A1 20011011 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.
Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8059

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods
comprise contacting the nucleic acid with one or more types of particles
having oligonucleotides attached thereto. In one embodiment of the
method, the oligonucleotides are attached to nanoparticles and have
sequences complementary to portions of the sequence of the nucleic acid.
A detectable change (preferably a color change) is brought about as a
result of the **hybridization** of the oligonucleotides on the
nanoparticles to the nucleic acid. The invention also provides
compositions and kits comprising particles. The invention further
provides methods of synthesizing unique nanoparticle-oligonucleotide
conjugates, the conjugates produced by the methods, and methods of using
the conjugates. In addition, the invention provides nanomaterials and
nanostructures comprising nanoparticles and methods of nanofabrication
utilizing nanoparticles. Finally, the invention provides a method of
separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 10 OF 33 USPATFULL on STN
AN 2003:71346 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc.
PI US 2003049631 A1 20030313
AI US 2001-974500 A1 20011010 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING

09567863

Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN

PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)

DT Utility

FS APPLICATION

LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.
Wacker Drive, Chicago, IL, 60606

CLMN Number of Claims: 172

ECL Exemplary Claim: 1

DRWN 46 Drawing Page(s)

LN.CNT 6565

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods
comprise (contacting the nucleic acid with one or more types of
particles having oligonucleotides attached thereto, In one embodiment of
the method, the oligonucleotides are attached to nanoparticles and have
sequences complementary to portions of the sequence of the nucleic acid.
A detectable change (preferably a color change) is brought about as a
result of the **hybridization** of the oligonucleotides on the
nanoparticles to the nucleic acid. The invention also provides
compositions and kits comprising particles The invention further
provides nanomaterials and iianoststructures comprising nanoparticles and
methods of nanofabrication utilizing the nanoparticles. Finally, the
invention provides a method of separating a selected nucleic acid from
other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 11 OF 33 USPATFULL on STN

AN 2003:71345 USPATFULL

TI Nanoparticles having oligonucleotides attached thereto and uses therefor

IN Mirkin, Chad A., Wilmette, IL, UNITED STATES

Letsinger, Robert L., Wilmette, IL, UNITED STATES

Mucic, Robert C., Glendale, CA, UNITED STATES

Storhoff, James J., Evanston, IL, UNITED STATES

Elghanian, Robert, Skokie, IL, UNITED STATES

Taton, Thomas A., Little Canada, MN, UNITED STATES

PA Nanosphere, Inc. (U.S. corporation)

PI US 2003049630 A1 20030313

AI US 2001-957318 A1 20010920 (9)

RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN

PRAI US 1996-31809P 19960729 (60)

US 2000-200161P 20000426 (60)

DT Utility

FS APPLICATION

LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.
Wacker Drive, Chicago, IL, 60606

CLMN Number of Claims: 431

ECL Exemplary Claim: 1

DRWN 46 Drawing Page(s)

LN.CNT 8041

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods
comprise contacting the nucleic acid with one or more types of particles
having oligonucleotides attached thereto. In one embodiment of the

09567863

method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 12 OF 33 USPATFULL on STN

AN 2003:64684 USPATFULL

TI Nanoparticles having oligonucleotides attached thereto and uses therefor

IN Mirkin, Chad A., Wilmette, IL, UNITED STATES

Letsinger, Robert L., Wilmette, IL, UNITED STATES

Mucic, Robert C, Glendale, CA, UNITED STATES

Storhoff, James J., Evanston, IL, UNITED STATES

Elghanian, Robert, Skokie, IL, UNITED STATES

Taton, Thomas A., Little Canada, MN, UNITED STATES

PA Nanosphere, Inc. (U.S. corporation)

PI US 2003044805 A1 20030306

AI US 2001-981344 A1 20011015 (9)

RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING

Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,

GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US

1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of

Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN

PRAI US 1996-31809P 19960729 (60)

US 2000-200161P 20000426 (60)

DT Utility

FS APPLICATION

LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.

Wacker Drive, Chicago, IL, 60606

CLMN Number of Claims: 431

ECL Exemplary Claim: 1

DRWN 46 Drawing Page(s)

LN.CNT 8061

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 13 OF 33 USPATFULL on STN

09567863

AN 2003:30222 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Park, So-Jung, Evanston, IL, UNITED STATES
PI US 2003022169 A1 20030130
AI US 2001-820279 A1 20010328 (9)
RLI Continuation-in-part of Ser. No. US 2001-760500, filed on 12 Jan 2001,
PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun
1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-176409P 20000113 (60)
US 2000-200161P 20000426 (60)
US 2000-192699P 20000328 (60)
US 2000-254392P 20001208 (60)
US 2000-255235P 20001211 (60)
DT Utility
FS APPLICATION
LREP MCDONNELL BOEHNNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE
3200, CHICAGO, IL, 60606
CLMN Number of Claims: 570
ECL Exemplary Claim: 1
DRWN 65 Drawing Page(s)
LN.CNT 11127

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods
comprise contacting the nucleic acid with one or more types of particles
having oligonucleotides attached thereto. In one embodiment of the
method, the oligonucleotides are attached to nanoparticles and have
sequences complementary to portions of the sequence of the nucleic acid.
A detectable change (preferably a color change) is brought about as a
result of the **hybridization** of the oligonucleotides on the
nanoparticles to the nucleic acid. The invention also provides
compositions and kits comprising particles. The invention further
provides methods of synthesizing unique nanoparticle-oligonucleotide
conjugates, the conjugates produced by the methods, and methods of using
the conjugates. In addition, the invention provides nanomaterials and
nanostructures comprising nanoparticles and methods of nanofabrication
utilizing nanoparticles. Finally, the invention provides a method of
separating a selected nucleic acid from other nucleic acids.F

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 14 OF 33 USPATFULL on STN
AN 2003:13189 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, United States
Letsinger, Robert L., Wilmette, IL, United States
Mucic, Robert C., Glendale, CA, United States
Storhoff, James J., Evanston, IL, United States
Elghanian, Robert, Chicago, IL, United States
Taton, Thomas A., Chicago, IL, United States
PA Nanosphere, Inc., Northbrook, IL, United States (U.S. corporation)
PI US 6506564 B1 20030114
AI US 2000-603830 20000626 (9)
RLI Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999
Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999
Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997
PRAI US 2000-200161P 20000426 (60)
US 1996-31809P 19960729 (60)

09567863

DT Utility
FS GRANTED
EXNAM Primary Examiner: Riley, Jezia
LREP McDonnell Boehnen Hulbert & Berghoff
CLMN Number of Claims: 42
ECL Exemplary Claim: 1
DRWN 84 Drawing Figure(s); 47 Drawing Page(s)
LN.CNT 5976

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 15 OF 33 USPATFULL on STN

AN 2002:322449 USPATFULL

TI Nanoparticles having oligonucleotides attached thereto and uses therefor

IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES

PA Nanosphere, Inc. (U.S. corporation)

PI US 2002182613 A1 20021205

US 6682895 B2 20040127

AI US 2001-976971 A1 20011012 (9)

RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN

PRAI US 1996-31809P 19960729 (60)

US 2000-200161P 20000426 (60)

DT Utility

FS APPLICATION

LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.
Wacker Drive, Chicago, IL, 60606

CLMN Number of Claims: 172

ECL Exemplary Claim: 1

DRWN 46 Drawing Page(s)

LN.CNT 6563

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a

09567863

result of the **hybridization** of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing the nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 16 OF 33 USPATFULL on STN
AN 2002:322447 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002182611 A1 20021205
US 6610491 B2 20030826
AI US 2001-966491 A1 20010928 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE
3200, CHICAGO, IL, 60606
CLMN Number of Claims: 190
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 6646

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing the nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 17 OF 33 USPATFULL on STN
AN 2002:307830 USPATFULL
TI Movement of biomolecule-coated nanoparticles in an electric field
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES

09567863

Elghanian, Robert, Chicago, IL, UNITED STATES
Taton, Thomas Andrew, Chicago, IL, UNITED STATES
Garimella, Viswanadham, Evanston, IL, UNITED STATES
Li, Zhi, Evanston, IL, UNITED STATES
Park, So-Jung, Evanston, IL, UNITED STATES

PI US 2002172953 A1 20021121
AI US 2001-927777 A1 20010810 (9)
RLI Continuation-in-part of Ser. No. US 2001-820279, filed on 28 Mar 2001,
PENDING Continuation-in-part of Ser. No. US 2001-760500, filed on 12 Jan
2001, PENDING Continuation-in-part of Ser. No. US 2000-603830, filed on
26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667,
filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part
of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED
Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997,
UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-176409P 20000113 (60)
US 2000-200161P 20000426 (60)
US 2000-192699P 20000328 (60)
US 2000-254392P 20001208 (60)
US 2000-255235P 20001211 (60)
US 2000-224631P 20000811 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.
Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 598
ECL Exemplary Claim: 1
DRWN 64 Drawing Page(s)
LN.CNT 11435

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods
comprise contacting the nucleic acid with one or more types of particles
having oligonucleotides attached thereto. In one embodiment of the
method, the oligonucleotides are attached to nanoparticles and have
sequences complementary to portions of the sequence of the nucleic acid.
A detectable change (preferably a color change) is brought about as a
result of the **hybridization** of the oligonucleotides on the
nanoparticles to the nucleic acid. The invention also provides
compositions and kits comprising particles. The invention further
provides methods of synthesizing unique nanoparticle-oligonucleotide
conjugates, the conjugates produced by the methods, and methods of using
the conjugates. In addition, the invention provides nanomaterials and
nanostructures comprising nanoparticles and methods of nanofabrication
utilizing nanoparticles. Finally, the invention provides a method of
separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 18 OF 33 USPATFULL on STN

AN 2002:294562 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Chicago, IL, UNITED STATES
Taton, Thomas A., Chicago, IL, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002164605 A1 20021107
US 6673548 B2 20040106
AI US 2001-966312 A1 20010928 (9)

09567863

RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN

PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)

DT Utility

FS APPLICATION

LREP MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE
3200, CHICAGO, IL, 60606

CLMN Number of Claims: 431

ECL Exemplary Claim: 1

DRWN 46 Drawing Page(s)

LN.CNT 8066

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods
comprise contacting the nucleic acid with one or more types of particles
having oligonucleotides attached thereto. In one embodiment of the
method, the oligonucleotides are attached to nanoparticles and have
sequences complementary to portions of the sequence of the nucleic acid.
A detectable change (preferably a color change) is brought about as a
result of the **hybridization** of the oligonucleotides on the
nanoparticles to the nucleic acid. The invention also provides
compositions and kits comprising particles. The invention further
provides methods of synthesizing unique nanoparticle-oligonucleotide
conjugates, the conjugates produced by the methods, and methods of using
the conjugates. In addition, the invention provides nanomaterials and
nanostructures comprising nanoparticles and methods of nanofabrication
utilizing nanoparticles. Finally, the invention provides a method of
separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 19 OF 33 USPATFULL on STN

AN 2002:287518 USPATFULL

TI Nanoparticles having oligonucleotides attached thereto and uses therefor

IN Mirkin, Chad A., Wilmette, IL, UNITED STATES

Letsinger, Robert L., Wilmette, IL, UNITED STATES

Mucic, Robert C., Glendale, CA, UNITED STATES

Storhoff, James J., Evanston, IL, UNITED STATES

Elghanian, Robert, Skokie, IL, UNITED STATES

Taton, Thomas Andrew, Little Canada, MN, UNITED STATES

PA Nanosphere, Inc. (U.S. corporation)

PI US 2002160381 A1 20021031

AI US 2001-975498 A1 20011011 (9)

RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
PENDING Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan
1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed
on 21 Jul 1997, UNKNOWN

PRAI US 1996-31809P 19960729 (60)

US 2000-200161P 20000426 (60)

DT Utility

FS APPLICATION

LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.
Wacker Drive, Chicago, IL, 60606

CLMN Number of Claims: 431

ECL Exemplary Claim: 1

DRWN 46 Drawing Page(s)

LN.CNT 5695

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

09567863

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 20 OF 33 USPATFULL on STN
AN 2002:280028 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Tatón, Thomas Andrew, Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002155462 A1 20021024
AI US 2001-976577 A1 20011012 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.
Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8047

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

09567863

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 21 OF 33 USPATFULL on STN
AN 2002:280027 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas Andrew, Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002155461 A1 20021024
AI US 2001-976378 A1 20011012 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.
Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8052

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods
comprise contacting the nucleic acid with one or more types of particles
having oligonucleotides attached thereto. In one embodiment of the
method, the oligonucleotides are attached to nanoparticles and have
sequences complementary to portions of the sequence of the nucleic acid.
A detectable change (preferably a color change) is brought about as a
result of the **hybridization** of the oligonucleotides on the
nanoparticles to the nucleic acid. The invention also provides
compositions and kits comprising particles. The invention further
provides methods of synthesizing unique nanoparticle-oligonucleotide
conjugates, the conjugates produced by the methods, and methods of using
the conjugates. In addition, the invention provides nanomaterials and
nanostructures comprising nanoparticles and methods of nanofabrication
utilizing nanoparticles. Finally, the invention provides a method of
separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 22 OF 33 USPATFULL on STN
AN 2002:280025 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002155459 A1 20021024
US 6677122 B2 20040113
AI US 2001-975062 A1 20011011 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING

09567863

Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN

PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)

DT Utility

FS APPLICATION

LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606

CLMN Number of Claims: 431

ECL Exemplary Claim: 1

DRWN 46 Drawing Page(s)

LN.CNT 8059

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 23 OF 33 USPATFULL on STN

AN 2002:280024 USPATFULL

TI Nanoparticles having oligonucleotides attached thereto and uses therefor

IN Mirkin, Chad A., Wilmette, IL, UNITED STATES

Letsinger, Robert L., Wilmette, IL, UNITED STATES

Mucic, Robert C., Glendale, CA, UNITED STATES

Storhoff, James J., Evanston, IL, UNITED STATES

Elghanian, Robert, Skokie, IL, UNITED STATES

Taton, Thomas A., Little Canada, MN, UNITED STATES

PA Nanosphere, Inc. (U.S. corporation)

PI US 2002155458 A1 20021024

AI US 2001-967409 A1 20010928 (9)

RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN

PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)

DT Utility

FS APPLICATION

LREP MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE 3200, CHICAGO, IL, 60606

CLMN Number of Claims: 431

ECL Exemplary Claim: 1

DRWN 46 Drawing Page(s)

LN.CNT 8059

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods

comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 24 OF 33 USPATFULL on STN
 AN 2002:280008 USPATFULL
 TI Nanoparticles having oligonucleotides attached thereto and uses therefor
 IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
 Letsinger, Robert L., Wilmette, IL, UNITED STATES
 Mucic, Robert C., Glendale, CA, UNITED STATES
 Storhoff, James J., Evanston, IL, UNITED STATES
 Elghanian, Robert, Chicago, IL, UNITED STATES
 Taton, Thomas A., Little Canada, MN, UNITED STATES
 Garimella, Viswanadham, Evanston, IL, UNITED STATES
 Li, Zhi, Evanston, IL, UNITED STATES
 PI US 2002155442 A1 20021024
 AI US 2001-760500 A1 20010112 (9)
 RLI Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
 PRAI US 1996-31809P 19960729 (60)
 US 2000-200161P 20000426 (60)
 US 2000-176409P 20000113 (60)
 US 2000-213906P 20000626 (60)
 DT Utility
 FS APPLICATION
 LREP MCDONNELL BOEHNNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE 3200, CHICAGO, IL, 60606
 CLMN Number of Claims: 485
 ECL Exemplary Claim: 1
 DRWN 51 Drawing Page(s)
 LN.CNT 8754

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

09567863

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 25 OF 33 USPATFULL on STN
AN 2002:265844 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002146720 A1 20021010
US 6582921 B2 20030624
AI US 2001-961949 A1 20010920 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.
Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8063

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods
comprise contacting the nucleic acid with one or more types of particles
having oligonucleotides attached thereto. In one embodiment of the
method, the oligonucleotides are attached to nanoparticles and have
sequences complementary to portions of the sequence of the nucleic acid.
A detectable change (preferably a color change) is brought about as a
result of the **hybridization** of the oligonucleotides on the
nanoparticles to the nucleic acid. The invention also provides
compositions and kits comprising particles. The invention further
provides methods of synthesizing unique nanoparticle-oligonucleotide
conjugates, the conjugates produced by the methods, and methods of using
the conjugates. In addition, the invention provides nanomaterials and
nanostructures comprising nanoparticles and methods of nanofabrication
utilizing nanoparticles. Finally, the invention provides a method of
separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 26 OF 33 USPATFULL on STN
AN 2002:251128 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002137072 A1 20020926
AI US 2001-976617 A1 20011012 (9)

09567863

RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN

PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)

DT Utility
FS APPLICATION

LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.
Wacker Drive, Chicago, IL, 60606

CLMN Number of Claims: 431

ECL Exemplary Claim: 1

DRWN 46 Drawing Page(s)

LN.CNT 8061

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods
comprise contacting the nucleic acid with one or more types of particles
having oligonucleotides attached thereto. In one embodiment of the
method, the oligonucleotides are attached to nanoparticles and have
sequences complementary to portions of the sequence of the nucleic acid.
A detectable change (preferably a color change) is brought about as a
result of the **hybridization** of the oligonucleotides on the
nanoparticles to the nucleic acid. The invention also provides
compositions and kits comprising particles. The invention further
provides methods of synthesizing unique nanoparticle-oligonucleotide
conjugates, the conjugates produced by the methods, and methods of using
the conjugates. In addition, the invention provides nanomaterials and
nanostructures comprising nanoparticles and methods of nanofabrication
utilizing nanoparticles. Finally, the invention provides a method of
separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 27 OF 33 USPATFULL on STN

AN 2002:251127 USPATFULL

TI Nanoparticles having oligonucleotides attached thereto and uses therefor

IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES

PA Nanosphere, Inc. (U.S. corporation)

PI US 2002137071 A1 20020926

AI US 2001-974007 A1 20011010 (9)

RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN

PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)

DT Utility
FS APPLICATION

LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.
Wacker Drive, Chicago, IL, 60606

CLMN Number of Claims: 431

ECL Exemplary Claim: 1

DRWN 46 Drawing Page(s)

LN.CNT 8063

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

09567863

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 28 OF 33 USPATFULL on STN

AN 2002:251126 USPATFULL

TI Nanoparticles having oligonucleotides attached thereto and uses therefor

IN Mirkin, Chad A., Wilmette, IL, UNITED STATES

Letsinger, Robert L., Wilmette, IL, UNITED STATES

Mucic, Robert C., Glendale, CA, UNITED STATES

Storhoff, James J., Evanston, IL, UNITED STATES

Elghanian, Robert, Skokie, IL, UNITED STATES

Taton, Thomas A., Little Canada, MN, UNITED STATES

PA Nanosphere, Inc. (U.S. corporation)

PI US 2002137070 A1 20020926

AI US 2001-973638 A1 20011010 (9)

RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN

PRAI US 1996-31809P 19960729 (60)

US 2000-200161P 20000426 (60)

DT Utility

FS APPLICATION

LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.
Wacker Drive, Chicago, IL, 60606

CLMN Number of Claims: 431

ECL Exemplary Claim: 1

DRWN 46 Drawing Page(s)

LN.CNT 8060

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

09567863

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 29 OF 33 USPATFULL on STN
AN 2002:235385 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002127574 A1 20020912
AI US 2001-973788 A1 20011010 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING
Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,
GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US
1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of
Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S.
Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8060

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods
comprise contacting the nucleic acid with one or more types of particles
having oligonucleotides attached thereto. In one embodiment of the
method, the oligonucleotides are attached to nanoparticles and have
sequences complementary to portions of the sequence of the nucleic acid.
A detectable change (preferably a color change) is brought about as a
result of the **hybridization** of the oligonucleotides on the
nanoparticles to the nucleic acid. The invention also provides
compositions and kits comprising particles. The invention further
provides methods of synthesizing unique nanoparticle-oligonucleotide
conjugates, the conjugates produced by the methods, and methods of using
the conjugates. In addition, the invention provides nanomaterials and
nanostructures comprising nanoparticles and methods of nanofabrication
utilizing nanoparticles. Finally, the invention provides a method of
separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 30 OF 33 USPATFULL on STN
AN 2002:171867 USPATFULL
TI Sets of generalized target-binding e-tag probes
IN Singh, Sharat, San Jose, CA, UNITED STATES
Matray, Tracy, San Lorenzo, CA, UNITED STATES
Chenna, Ahmed, Sunnyvale, CA, UNITED STATES
PI US 2002090616 A1 20020711
AI US 2001-825244 A1 20010402 (9)
RLI Continuation of Ser. No. US 1999-303029, filed on 30 Apr 1999, GRANTED,
Pat. No. US 6322980 Continuation of Ser. No. US 2000-561579, filed on 28
Apr 2000, ABANDONED Continuation of Ser. No. US 2000-602586, filed on 21
Jun 2000, PENDING Continuation of Ser. No. US 2000-684386, filed on 4
Oct 2000, PENDING Continuation of Ser. No. US 2000-698846, filed on 27
Oct 2000, PENDING

09567863

DT Utility
FS APPLICATION
LREP PERKINS COIE LLP, P.O. BOX 2168, MENLO PARK, CA, 94026
CLMN Number of Claims: 20
ECL Exemplary Claim: 1
DRWN 45 Drawing Page(s)
LN.CNT 4208

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Probe sets for the multiplexed detection of the binding of, or interaction between, one or more ligands and target antiligands are provided. Detection involves the release of identifying tags as a consequence of target recognition. The probe sets include electrophoretic tag probes or e-tag probes, comprising a detection region and a mobility-defining region called the mobility modifier, both linked to a target-binding moiety. Target antiligands are contacted with a set of e-tag probes and the contacted antiligands are treated with a selected cleaving agent resulting in a mixture of e-tag reporters and uncleaved and/or partially cleaved e-tag probes. The mixture is exposed to a capture agent effective to bind to uncleaved or partially cleaved e-tag probes, followed by electrophoretic separation. In a multiplexed assay, different released e-tag reporters may be separated and detected providing for target identification.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 31 OF 33 USPATFULL on STN
AN 2002:126283 USPATFULL
TI Nucleic acid detection method and apparatus, and vessel for detecting nucleic acid
IN Hashimoto, Koji, Sagamihara-shi, JAPAN
PI US 2002064795 A1 20020530
US 6670131 B2 20031230
AI US 2001-995614 A1 20011129 (9)
PRAI JP 2000-364614 20001130
DT Utility
FS APPLICATION
LREP OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC, FOURTH FLOOR, 1755 JEFFERSON DAVIS HIGHWAY, ARLINGTON, VA, 22202
CLMN Number of Claims: 16
ECL Exemplary Claim: 1
DRWN 9 Drawing Page(s)
LN.CNT 1042

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB There is disclosed a nucleic acid detection apparatus including a nucleic acid immobilized **electrode** constituted by immobilizing a nucleic acid probe to a conductor, a plurality of vessels for bringing the nucleic acid probe into contact with a subject substance, a counter **electrode** disposed on a bottom surface or a inside surface of the vessel, and an electric circuit for applying a voltage between the nucleic acid immobilized **electrode** and the counter **electrode**. A nucleic acid is detected by inserting the nucleic acid immobilized **electrode** into each vessel containing the subject substance, and using the counter **electrode** disposed on the bottom surface or inside surface of the vessel to electrically control reaction.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 32 OF 33 USPATFULL on STN
AN 2002:85692 USPATFULL
TI Oligonucleotide-binding e-tag probe compositions
IN Singh, Sharat, San Jose, CA, UNITED STATES

09567863

Tian, Huan, Los Altos, CA, UNITED STATES
PI US 2002045738 A1 20020418
AI US 2001-825245 A1 20010402 (9)
RLI Continuation of Ser. No. US 1999-303029, filed on 30 Apr 1999, PENDING
Continuation of Ser. No. US 2000-561579, filed on 28 Apr 2000, PENDING
Continuation of Ser. No. US 2000-602586, filed on 21 Jun 2000, PENDING
Continuation of Ser. No. US 2000-684386, filed on 4 Oct 2000, PENDING
Continuation of Ser. No. US 2000-698846, filed on 27 Oct 2000, PENDING
DT Utility
FS APPLICATION
LREP IOTA PI LAW GROUP, 350 CAMBRIDGE AVENUE SUITE 250, P O BOX 60850, PALO
ALTO, CA, 94306-0850
CLMN Number of Claims: 19
ECL Exemplary Claim: 1
DRWN 45 Drawing Page(s)
LN.CNT 4184
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Compositions for the multiplexed detection of known, selected nucleotide
target sequences are provided. The compositions include one or more
uncleaved or partially cleaved electrophoretic tag (e-tag) probes from a
set of e-tag probes, at least one e-tag reporter out of a possible set
of e-tag reporters and a capture agent. The e-tag probes comprise a
detection region and a mobility-defining region called the mobility
modifier, both linked to a target-binding moiety. Detection involves the
release of identifying tags as a consequence of target recognition. The
target-binding moiety of the e-tag probes hybridizes to complementary
target sequences followed by nuclease cleavage of the e-tag probes and
release of detectable e-tags or e-tag reporters. The mixture is exposed
to a capture agent which binds uncleaved and/or partially cleaved e-tag
probes, followed by electrophoretic separation. In a multiplexed assay,
different released e-tag reporters may be separated and detected
providing for target identification.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L17 ANSWER 33 OF 33 USPATFULL on STN
AN 2002:27108 USPATFULL
TI Sets of oligonucleotide-binding e-tag probes
IN Singh, Sharat, San Jose, CA, UNITED STATES
Matray, Tracy, San Lorenzo, CA, UNITED STATES
Chenna, Ahmed, Sunnyvale, CA, UNITED STATES
PI US 2002015954 A1 20020207
AI US 2001-825246 A1 20010402 (9)
RLI Continuation of Ser. No. US 1999-303029, filed on 30 Apr 1999, PENDING
Continuation of Ser. No. US 2000-561579, filed on 28 Apr 2000, PENDING
Continuation of Ser. No. US 2000-602586, filed on 21 Jun 2000, PENDING
Continuation of Ser. No. US 2000-684386, filed on 4 Oct 2000, PENDING
Continuation of Ser. No. US 2000-698846, filed on 27 Oct 2000, PENDING
DT Utility
FS APPLICATION
LREP IOTA PI LAW GROUP, 350 CAMBRIDGE AVENUE SUITE 250, P O BOX 60850, PALO
ALTO, CA, 94306-0850
CLMN Number of Claims: 15
ECL Exemplary Claim: 1
DRWN 45 Drawing Page(s)
LN.CNT 4140
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Probe sets for the multiplexed detection of known, selected nucleotide
target sequences are provided. Detection involves the release of
identifying tags as a consequence of target recognition. The probe sets
include electrophoretic tag probes or "e-tag probes", comprising a
detection region and a mobility-defining region called the mobility

09567863

modifier, both linked to a target-binding moiety. The target-binding moiety of the e-tag probes hybridizes to complementary target sequences followed by nuclease cleavage of the e-tag probes and release of detectable e-tags or e-tag reporters. The mixture is exposed to a capture agent which binds uncleaved and/or partially cleaved e-tag probes, followed by electrophoretic separation. In a multiplexed assay, different released e-tag reporters may be separated and detected providing for target identification.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

09567863

* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 06:06:59 ON 29 FEB 2004

=> file biosis medline caplus wpids uspatfull

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
0.63	0.63

FULL ESTIMATED COST

FILE 'BIOSIS' ENTERED AT 06:08:50 ON 29 FEB 2004

COPYRIGHT (C) 2004 BIOLOGICAL ABSTRACTS INC.(R)

FILE 'MEDLINE' ENTERED AT 06:08:50 ON 29 FEB 2004

FILE 'CAPLUS' ENTERED AT 06:08:50 ON 29 FEB 2004

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'WPIDS' ENTERED AT 06:08:50 ON 29 FEB 2004

COPYRIGHT (C) 2004 THOMSON DERWENT

FILE 'USPATFULL' ENTERED AT 06:08:50 ON 29 FEB 2004

CA INDEXING COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

*** YOU HAVE NEW MAIL ***

=> s detect? (5a) plur? (4a) nucleic acid?

3 FILES SEARCHED...

L1 249 DETECT? (5A) PLUR? (4A) NUCLEIC ACID?

=> s l1 and electroconduct?

L2 3 L1 AND ELECTROCONDUCT?

=> s l2 and label?

L3 3 L2 AND LABEL?

=> s l3 and array

L4 3 L3 AND ARRAY

=> d l4 bib abs 1-3

L4 ANSWER 1 OF 3 USPATFULL on STN

AN 2003:30204 USPATFULL

TI Methods for detecting a target molecule

IN Sampson, Jeffrey R., Burlingame, CA, UNITED STATES

Gordon, Gary B., Saratoga, CA, UNITED STATES

Luebke, Kevin J., Dallas, TX, UNITED STATES

Myerson, Joel, Berkeley, CA, UNITED STATES

PI US 2003022150 A1 20030130

AI US 2001-915044 A1 20010724 (9)

DT Utility

FS APPLICATION

LREP AGILENT TECHNOLOGIES, INC., Legal Department, DL429, Intellectual
Property Administration, P.O. Box 7599, Loveland, CO, 80537-0599

CLMN Number of Claims: 61

ECL Exemplary Claim: 1

DRWN 3 Drawing Page(s)

LN.CNT 1541

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method for detecting a target moiety is disclosed. In one embodiment,
a plurality of electrodes supported by a semiconductor substrate are

09567863

brought into proximity with a reaction medium comprising a sample suspected of containing the target molecule. Each of the electrodes comprises at least one target probe. A plurality of cells within the semiconductor substrate are selectively addressed to apply a stimulus to each of the electrodes to activate a predetermined redox active moiety that is associated with an electrode and to detect, by means of the electrodes, corresponding responses produced as a result of the activation of the redox active moieties. The magnitude of the corresponding responses indicates the presence or absence of the target molecule in the sample.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 2 OF 3 USPATFULL on STN
AN 2002:148576 USPATFULL
TI Method for detecting nucleic acids
IN Makino, Yoshihiko, Saitama, JAPAN
Abe, Yoshihiko, Saitama, JAPAN
Ogawa, Masashi, Tokyo, JAPAN
Takagi, Makoto, Fukuoka, JAPAN
Takenaka, Shigeori, Fukuoka, JAPAN
Yamashita, Kenichi, Fukuoka, JAPAN
PI US 2002076717 A1 20020620
AI US 2001-887625 A1 20010622 (9)
PRAI JP 2000-187486 20000622
DT Utility
FS APPLICATION
LREP REED SMITH LLP, 375 Park Avenue, New York, NY, 10152
CLMN Number of Claims: 8
ECL Exemplary Claim: 1
DRWN 3 Drawing Page(s)
LN.CNT 552

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method of **detecting nucleic acid** fragments in **plural** samples is performed by the steps of: attaching an **electroconductive label** to nucleic acid fragments in one sample and attaching a different **electroconductive label** to nucleic acid fragments in another sample; preparing a mixture of these samples; spotting the mixture on an **electroconductive** microarray having plural electrodes onto which probe molecules complementary to the nucleic acid fragments are fixed, so that hybridization between the nucleic acid fragments and the probe molecules on the **electroconductive** microarray can proceed to form hybrid structures; applying to the electrode an electric potential corresponding to the oxidation-reduction potential of the former **label** and detecting on the electrode an electric current; applying to the electrode an electric potential corresponding to the oxidation-reduction potential of the latter **label** and detecting on the electrode an electric current; and comparing the electric current detected in the former detecting procedure and that detected in the latter detecting procedure.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L4 ANSWER 3 OF 3 USPATFULL on STN
AN 2001:233294 USPATFULL
TI DNA chip and reactive electrode
IN Makino, Yoshihiko, Saitama, Japan
Abe, Yoshihiko, Saitama, Japan
Ogawa, Masashi, Tokyo, Japan
PA Fuji Photo Film Co., Ltd. (non-U.S. corporation)
PI US 2001053522 A1 20011220

09567863

AI US 2001-845403 A1 20010430 (9)
PRAI JP 2000-130090 20000428
DT Utility
FS APPLICATION
LREP Jules Goldberg, Jules E. Goldberg, Esq., REED SMITH LLP, 375 Park
Avenue, New York, NY, 10152
CLMN Number of Claims: 33
ECL Exemplary Claim: 1
DRWN 2 Drawing Page(s)
LN.CNT 1224

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A nucleic acid detective means composed of an electrode and plural peptide nucleic acids which are fixed onto the electrode via covalent bonding is favorably employed for electrochemically detecting complementary DNA fragments. The covalent bonding between the electrode and the peptide nucleic acids are favorably produced by the reaction between a reactive hydrogen-containing group attached to the peptide nucleic acid and a vinylsulfonyl group or a reactive precursor thereof attached to the electrode.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> d his

(FILE 'HOME' ENTERED AT 06:06:59 ON 29 FEB 2004)

FILE 'BIOSIS, MEDLINE, CAPLUS, WPIDS, USPATFULL' ENTERED AT 06:08:50 ON 29 FEB 2004

L1 249 S DETECT? (5A) PLUR? (4A) NUCLEIC ACID?
L2 3 S L1 AND ELECTROCONDUCT?
L3 3 S L2 AND LABEL?
L4 3 S L3 AND ARRAY

=> s l1 and electro? (10a) array?

4 FILES SEARCHED...

L5 67 L1 AND ELECTRO? (10A) ARRAY?

=> s l5 not l4

L6 65 L5 NOT L4

=> dup rem l6

PROCESSING COMPLETED FOR L6

L7 65 DUP REM L6 (0 DUPLICATES REMOVED)

=> s l7 and ratio

L8 61 L7 AND RATIO

=> s l8 and oxidation (2a) reduction

L9 7 L8 AND OXIDATION (2A) REDUCTION

=> d l9 bib abs 1-7

L9 ANSWER 1 OF 7 USPATFULL on STN
AN 2003:180764 USPATFULL
TI Replica amplification of nucleic acid arrays
IN Church, George M., Brookline, MA, UNITED STATES
Mitra, Robi D., Chustnut Hill, MA, UNITED STATES
PA President & Fellows Of Harvard College, Cambridge, MA (U.S. corporation)
PI US 2003124594 A1 20030703
AI US 2002-285010 A1 20021031 (10)
RLI Continuation of Ser. No. US 2000-522732, filed on 10 Mar 2000, GRANTED,

09567863

Pat. No. US 6511803 Continuation-in-part of Ser. No. US 1999-267496, filed on 12 Mar 1999, GRANTED, Pat. No. US 6485944 Continuation-in-part of Ser. No. US 1998-143014, filed on 28 Aug 1998, GRANTED, Pat. No. US 6432360

PRAI US 1998-76570P 19980302 (60)
US 1997-61511P 19971010 (60)

DT Utility

FS APPLICATION

LREP BANNER & WITCOFF, LTD., 28 STATE STREET, 28th FLOOR, BOSTON, MA, 02109

CLMN Number of Claims: 67

ECL Exemplary Claim: 1

DRWN 12 Drawing Page(s)

LN.CNT 4229

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Disclosed are improved methods of making and using immobilized arrays of nucleic acids, particularly methods for producing replicas of such arrays. Included are methods for producing high density arrays of nucleic acids and replicas of such arrays, as well as methods for preserving the resolution of arrays through rounds of replication. Also included are methods which take advantage of the availability of replicas of arrays for increased sensitivity in detection of sequences on arrays. Improved methods of sequencing nucleic acids immobilized on arrays utilizing single copies of arrays and methods taking further advantage of the availability of replicas of arrays are disclosed. The improvements lead to higher fidelity and longer read lengths of sequences immobilized on arrays. Methods are also disclosed which improve the efficiency of multiplex PCR using arrays of immobilized nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 2 OF 7 USPATFULL on STN

AN 2003:26243 USPATFULL

TI Replica amplification of nucleic acid arrays

IN Church, George M., Brookline, MA, United States

Mitra, Robi D., Chestnut Hill, MA, United States

PA President and Fellows of Harvard College, Cambridge, MA, United States
(U.S. corporation)

PI US 6511803 B1 20030128

AI US 2000-522732 20000310 (9)

RLI Continuation-in-part of Ser. No. US 1999-267496, filed on 12 Mar 1999
Continuation-in-part of Ser. No. US 1998-143014, filed on 28 Aug 1998,
now patented, Pat. No. US 6432360, issued on 13 Aug 2002

PRAI US 1997-61511P 19971010 (60)

US 1998-76570P 19980302 (60)

DT Utility

FS GRANTED

EXNAM Primary Examiner: Siew, Jeffrey

LREP Banner & Witcoff, Ltd.

CLMN Number of Claims: 12

ECL Exemplary Claim: 1

DRWN 14 Drawing Figure(s); 10 Drawing Page(s)

LN.CNT 3908

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Disclosed are improved methods of making and using immobilized arrays of nucleic acids, particularly methods for producing replicas of such arrays. Included are methods for producing high density arrays of nucleic acids and replicas of such arrays, as well as methods for preserving the resolution of arrays through rounds of replication. Also included are methods which take advantage of the availability of replicas of arrays for increased sensitivity in detection of sequences on arrays. Improved methods of sequencing nucleic acids immobilized on

09567863

arrays utilizing single copies of arrays and methods taking further advantage of the availability of replicas of arrays are disclosed. The improvements lead to higher fidelity and longer read lengths of sequences immobilized on arrays. Methods are also disclosed which improve the efficiency of multiplex PCR using arrays of immobilized nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 3 OF 7 USPATFULL on STN
AN 2002:310790 USPATFULL
TI Replica amplification of nucleic acid arrays
IN Church, George M., Brookline, MA, United States
Mitra, Rob, Brookline, MA, United States
PA President and Fellows of Harvard College, Cambridge, MA, United States
(U.S. corporation)
PI US 6485944 B1 20021126
AI US 1999-267496 19990312 (9)
RLI Continuation-in-part of Ser. No. US 1998-143014, filed on 28 Aug 1998
PRAI US 1997-61511P 19971010 (60)
US 1998-76570P 19980302 (60)
DT Utility
FS GRANTED
EXNAM Primary Examiner: Marschel, Ardin H.
LREP Banner & Witcoff, Ltd.
CLMN Number of Claims: 28
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3015

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Disclosed are improved methods of making and using immobilized arrays of nucleic acids, particularly methods for producing replicas of such arrays. Included are methods for producing high density arrays of nucleic acids and replicas of such arrays, as well as methods for preserving the resolution of arrays through rounds of replication. Also included are methods which take advantage of the availability of replicas of arrays for increased sensitivity in detection of sequences on arrays. Improved methods of sequencing nucleic acids immobilized on arrays utilizing single copies of arrays and methods taking further advantage of the availability of replicas of arrays are disclosed. The improvements lead to higher fidelity and longer read lengths of sequences immobilized on arrays. Methods are also disclosed which improve the efficiency of multiplex PCR using arrays of immobilized nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 4 OF 7 USPATFULL on STN
AN 2002:235363 USPATFULL
TI Replica amplification of nucleic acid arrays
IN Church, George M, Brookline, MA, UNITED STATES
Mitra, Rob, Brookline, MA, UNITED STATES
PI US 2002127552 A1 20020912
AI US 2000-573465 A1 20000517 (9)
RLI Continuation-in-part of Ser. No. US 1999-267496, filed on 12 Mar 1999,
PENDING Continuation-in-part of Ser. No. US 1998-143014, filed on 28 Aug
1998, ABANDONED
PRAI US 1997-61511P 19971010 (60)
US 1998-76570P 19980302 (60)
DT Utility
FS APPLICATION
LREP John P Iwanicki, Banner & Witcoff LTD, 28 State Street, 28th Floor,

09567863

Boston, MA, 02109

CLMN Number of Claims: 48

ECL Exemplary Claim: 1

DRWN No Drawings

LN.CNT 3208

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Disclosed are improved methods of making and using immobilized arrays of nucleic acids, particularly methods for producing replicas of such arrays. Included are methods for producing high density arrays of nucleic acids and replicas of such arrays, as well as methods for preserving the resolution of arrays through rounds of replication. Also included are methods which take advantage of the availability of replicas of arrays for increased sensitivity in detection of sequences on arrays. Improved methods of sequencing nucleic acids immobilized on arrays utilizing single copies of arrays and methods taking further advantage of the availability of replicas of arrays are disclosed. The improvements lead to higher fidelity and longer read lengths of sequences immobilized on arrays. Methods are also disclosed which improve the efficiency of multiplex PCR using arrays of immobilized nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 5 OF 7 USPATFULL on STN

AN 2002:221982 USPATFULL

TI Replica amplification of nucleic acid arrays

IN Church, George M., Brookline, MA, UNITED STATES

Mitra, Rob, Brookline, MA, UNITED STATES

PI US 2002120127 A1 20020829

AI US 2000-572368 A1 20000517 (9)

RLI Division of Ser. No. US 1999-267496, filed on 12 Mar 1999, PENDING
Continuation-in-part of Ser. No. US 1998-143014, filed on 28 Aug 1998,
ABANDONED

PRAI US 1997-61511P 19971010 (60)

US 1998-76570P 19980302 (60)

DT Utility

FS APPLICATION

LREP John P Iwanicki, Banner & Witcoff LTD, 28 State Street 28th Floor,
Boston, MA, 02109

CLMN Number of Claims: 48

ECL Exemplary Claim: 1

DRWN No Drawings

LN.CNT 3210

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Disclosed are improved methods of making and using immobilized arrays of nucleic acids, particularly methods for producing replicas of such arrays. Included are methods for producing high density arrays of nucleic acids and replicas of such arrays, as well as methods for preserving the resolution of arrays through rounds of replication. Also included are methods which take advantage of the availability of replicas of arrays for increased sensitivity in detection of sequences on arrays. Improved methods of sequencing nucleic acids immobilized on arrays utilizing single copies of arrays and methods taking further advantage of the availability of replicas of arrays are disclosed. The improvements lead to higher fidelity and longer read lengths of sequences immobilized on arrays. Methods are also disclosed which improve the efficiency of multiplex PCR using arrays of immobilized nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 6 OF 7 USPATFULL on STN

09567863

AN 2002:221981 USPATFULL
TI Replica amplification of nucleic acid arrays
IN Church, George M., Brookline, MA, UNITED STATES
Mitra, Rob, Brookline, MA, UNITED STATES
PI US 2002120126 A1 20020829
AI US 2000-572365 A1 20000517 (9)
RLI Division of Ser. No. US 1999-267496, filed on 12 Mar 1999, PENDING
Continuation-in-part of Ser. No. US 1998-143014, filed on 28 Aug 1998,
ABANDONED
PRAI US 1997-61511P 19971010 (60)
US 1998-76570P 19980302 (60)
DT Utility
FS APPLICATION
LREP BANNER & WITCOFF, LTD., 28 STATE STREET, 28th FLOOR, BOSTON, MA, 02109
CLMN Number of Claims: 48
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 3210

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Disclosed are improved methods of making and using immobilized arrays of nucleic acids, particularly methods for producing replicas of such arrays. Included are methods for producing high density arrays of nucleic acids and replicas of such arrays, as well as methods for preserving the resolution of arrays through rounds of replication. Also included are methods which take advantage of the availability of replicas of arrays for increased sensitivity in detection of sequences on arrays. Improved methods of sequencing nucleic acids immobilized on arrays utilizing single copies of arrays and methods taking further advantage of the availability of replicas of arrays are disclosed. The improvements lead to higher fidelity and longer read lengths of sequences immobilized on arrays. Methods are also disclosed which improve the efficiency of multiplex PCR using arrays of immobilized nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9 ANSWER 7 OF 7 USPATFULL on STN
AN 2002:72606 USPATFULL
TI Nucleic acid detection sensor
IN Hashimoto, Koji, Sagami-hara-shi, JAPAN
Miyamoto, Hirohisa, Kamakura-shi, JAPAN
Itsumi, Kazuhiro, Kawasaki-shi, JAPAN
Suzuki, Kouhei, Yokohama-shi, JAPAN
PI US 2002039743 A1 20020404
AI US 2001-961249 A1 20010925 (9)
PRAI JP 2000-301516 20000929
DT Utility
FS APPLICATION
LREP OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC, FOURTH FLOOR, 1755
JEFFERSON DAVIS HIGHWAY, ARLINGTON, VA, 22202
CLMN Number of Claims: 20
ECL Exemplary Claim: 1
DRWN 13 Drawing Page(s)
LN.CNT 1198

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A **nucleic acid detection** sensor comprises
a **plurality of nucleic acid chain** fixed
electrodes to which a probe nucleic acid chain is fixed, and a counter
electrode which is arranged opposite to the nucleic acid chain fixed
electrode, and a current flowing between the counter electrode and the
nucleic acid chain fixed electrode.

09567863

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> d 19 3 kwic

L9 ANSWER 3 OF 7 USPATFULL on STN

SUMM . . . under conditions which permit hybridization of said
fluorescently labeled cDNA populations with nucleic acids immobilized on
said members of said **plurality of nucleic**
acid arrays and **detecting** the fluorescence of said
first fluorescently labeled population of cDNA and the fluorescence of
said second fluorescently labeled population of. . .

SUMM . . . under conditions which permit hybridization of said
fluorescently labeled cDNA populations with nucleic acid immobilized on
said members of a **plurality of immobilized nucleic**
acid arrays, **detecting** the intensity of fluorescence
on each member of said plurality contacted with a fluorescently labeled
cDNA population, and comparing the intensity of fluorescence
detected on each member of said **plurality of**
immobilized nucleic acid arrays so tested, to
determine the relative expression of mRNA derived from those nucleic
acids on the array in the. . .

DETD Acrylamide and bis-acrylamide are mixed in a **ratio** that is
designed to yield the degree of crosslinking between individual polymer
strands (for example, a **ratio** of 38:2 is typical of sequencing
gels) that results in the desired pore size when the overall percentage
of the. . .

DETD . . . drug-delivery vehicles, and the delivery to an electrophoretic
matrix of very large, unsheared DNA molecules, as required for
pulsed-field gel **electrophoresis** (Schwartz and Cantor, 1984,
Cell, 37: 67-75). The **arrays** of the invention are constructed
using as the starting material genomic DNA from a cell of an organism
that has. . . the array on a support other than agarose, which may be
difficult to handle if the gel is large, the **array** is
transferred via **electroblotting** onto a second support, such as
a nylon or nitrocellulose membrane prior to linkage.

DETD . . . as a support. The arrays produced by this method do, to a
certain extent, resemble sequencing gels; cleavage of an
electrophoresed array, e.g. with a second restriction
enzyme or combination thereof, followed by electrophoresis in a second
dimension improves resolution of individual. . .

DETD One may use the method of Jones (1997, supra) to sequence features on an
array without replicating the **array**. Other non-
electrophoretic methods which might be adapted to sequencing of
microarrays include the single nucleotide addition methods of
minisequencing (Canard & Sarfati,. . .

DETD . . . fluorophore and the nucleotide may be employed. Cleavage may be
accomplished, for example, by acid or base treatment, or by
oxidation or **reduction** of the linkage. For example, a
disulfide linkage may be reduced using thiol compounds such as
dithiothreitol. Similarly, a cis-glycol. . .

=>

09567863

FILE 'HOME' ENTERED AT 08:22:34 ON 29 FEB 2004

=> file biosis medline caplus wpids uspatfull
COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
0.21	0.21

FULL ESTIMATED COST

FILE 'BIOSIS' ENTERED AT 08:22:57 ON 29 FEB 2004
COPYRIGHT (C) 2004 BIOLOGICAL ABSTRACTS INC.(R)

FILE 'MEDLINE' ENTERED AT 08:22:57 ON 29 FEB 2004

FILE 'CAPLUS' ENTERED AT 08:22:57 ON 29 FEB 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'WPIDS' ENTERED AT 08:22:57 ON 29 FEB 2004
COPYRIGHT (C) 2004 THOMSON DERWENT

FILE 'USPATFULL' ENTERED AT 08:22:57 ON 29 FEB 2004
CA INDEXING COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

*** YOU HAVE NEW MAIL ***

=> s array? (7a) electrode?
L1 30064 ARRAY? (7A) ELECTRODE?

=> s l1 and probe?
L2 2928 L1 AND PROBE?

=> s l2 and differ?(8a) potential?
L3 620 L2 AND DIFFER?(8A) POTENTIAL?

=> s l3 and electrocond?
L4 11 L3 AND ELECTROCOND?

=> dup rem l4
PROCESSING COMPLETED FOR L4
L5 11 DUP REM L4 (0 DUPLICATES REMOVED)

=> d l5 bib abs 1-11

L5 ANSWER 1 OF 11 USPATFULL on STN
AN 2004:27054 USPATFULL
TI Amplification of nucleic acids with electronic detection
IN Blackburn, Gary, Glendora, CA, United States
Irvine, Bruce D., Glendora, CA, United States
Kayyem, Jon Faiz, Pasadena, CA, United States
Sheldon, III, Edward Lewis, Arcadia, CA, United States
Terbrueggen, Robert H., Manhattan Beach, CA, United States
PA Clinical Micro Sensors, Inc., Pasadena, CA, United States (U.S.
corporation)
PI US 6686150 B1 20040203
AI US 2000-621275 20000720 (9)
RLI Continuation-in-part of Ser. No. US 1999-238351, filed on 27 Jan 1999
Continuation of Ser. No. US 1998-14304, filed on 27 Jan 1998, now
patented, Pat. No. US 6063573 Continuation of Ser. No. US 1998-135183,
filed on 17 Aug 1998
PRAI US 1999-144698P 19990720 (60)
US 1998-84425P 19980506 (60)

09567863

US 1998-84509P 19980506 (60)
US 1998-28102P 19980316 (60)
US 1998-73011P 19980129 (60)
DT Utility
FS GRANTED
EXNAM Primary Examiner: Marschel, Ardin H.
LREP Dorsey & Whitney LLP, Silva, Robin M., Kossiak, Renee M.
CLMN Number of Claims: 23
ECL Exemplary Claim: 1
DRWN 104 Drawing Figure(s); 66 Drawing Page(s)
LN.CNT 7336
AB The invention relates to compositions and methods useful in the detection of nucleic acids using a variety of amplification techniques, including both signal amplification and target amplification. Detection proceeds through the use of an electron transfer moiety (ETM) that is associated with the nucleic acid, either directly or indirectly, to allow electronic detection of the ETM using an electrode.

L5 ANSWER 2 OF 11 USPATFULL on STN
AN 2003:330143 USPATFULL
TI Nucleic acid reactions using labels with **different** redox potentials
IN Yu, Changjun, Pasadena, CA, UNITED STATES
Tor, Yitzhak, San Diego, CA, UNITED STATES
PI US 2003232354 A1 20031218
AI US 2003-336225 A1 20030102 (10)
RLI Continuation of Ser. No. US 2002-116726, filed on 3 Apr 2002, ABANDONED
Continuation of Ser. No. US 2000-626096, filed on 26 Jul 2000, PENDING
PRAI US 2001-281276P 20010403 (60)
DT Utility
FS APPLICATION
LREP DORSEY & WHITNEY LLP, INTELLECTUAL PROPERTY DEPARTMENT, 4 EMBARCADERO CENTER, SUITE 3400, SAN FRANCISCO, CA, 94111
CLMN Number of Claims: 25
ECL Exemplary Claim: 1
DRWN 40 Drawing Page(s)
LN.CNT 3998
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention is directed to methods and compositions for the use of electron transfer moieties with **different** redox potentials to electronically detect nucleic acids, particularly for the electrochemical sequencing of DNA.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 3 OF 11 USPATFULL on STN
AN 2003:307225 USPATFULL
TI Method and system for detecting electrophysiological changes in pre-cancerous and cancerous tissue
IN Davies, Richard J., Saddle River, NJ, UNITED STATES
PI US 2003216661 A1 20031120
AI US 2002-151233 A1 20020520 (10)
DT Utility
FS APPLICATION
LREP Lerner, David, Littenberg,, Krumholz & Mentlik, LLP, 600 South Avenue West, Westfield, NJ, 07090
CLMN Number of Claims: 55
ECL Exemplary Claim: 1
DRWN 17 Drawing Page(s)
LN.CNT 1790
AB A method and system are provided for determining a condition of a

09567863

selected region of epithelial tissue. At least two current-passing electrodes are located in contact with a first surface of the selected region of the tissue. A plurality of measuring electrodes are located in contact with the first surface of the selected region of tissue as well. Electropotential and impedance are measured at one or more locations. An agent may be introduced into the region of tissue to enhance electrophysiological characteristics. The condition of the tissue is determined based on the electropotential and impedance profile at different depths of the epithelium, tissue, or organ, together with an estimate of the functional changes in the epithelium due to altered ion transport and electrophysiological properties of the tissue.

L5 ANSWER 4 OF 11 USPATFULL on STN
AN 2003:207198 USPATFULL
TI Nucleic acid reactions using labels with **different** redox
potentials
IN Blackburn, Gary, Glendora, CA, UNITED STATES
Kayyem, Jon Faiz, Pasadena, CA, UNITED STATES
Tao, Chunlin, Beverly Hills, CA, UNITED STATES
Yu, Changjun, Pasadena, CA, UNITED STATES
PI US 2003143556 A1 20030731
AI US 2002-137710 A1 20020430 (10)
RLI Continuation-in-part of Ser. No. US 2002-116726, filed on 3 Apr 2002,
ABANDONED
PRAI US 2001-281276P 20010403 (60)
DT Utility
FS APPLICATION
LREP DORSEY & WHITNEY LLP, INTELLECTUAL PROPERTY DEPARTMENT, 4 EMBARCADERO
CENTER, SUITE 3400, SAN FRANCISCO, CA, 94111
CLMN Number of Claims: 25
ECL Exemplary Claim: 1
DRWN 44 Drawing Page(s)
LN.CNT 3898
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention is directed to methods and compositions for the
use of electron transfer moieties with **different** redox
potentials to electronically detect nucleic acids, particularly
for the electrochemical sequencing of DNA.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 5 OF 11 USPATFULL on STN
AN 2003:30204 USPATFULL
TI Methods for detecting a target molecule
IN Sampson, Jeffrey R., Burlingame, CA, UNITED STATES
Gordon, Gary B., Saratoga, CA, UNITED STATES
Luebke, Kevin J., Dallas, TX, UNITED STATES
Myerson, Joel, Berkeley, CA, UNITED STATES
PI US 2003022150 A1 20030130
AI US 2001-915044 A1 20010724 (9)
DT Utility
FS APPLICATION
LREP AGILENT TECHNOLOGIES, INC., Legal Department, DL429, Intellectual
Property Administration, P.O. Box 7599, Loveland, CO, 80537-0599
CLMN Number of Claims: 61
ECL Exemplary Claim: 1
DRWN 3 Drawing Page(s)
LN.CNT 1541
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A method for detecting a target moiety is disclosed. In one embodiment,
a plurality of electrodes supported by a semiconductor substrate are

09567863

brought into proximity with a reaction medium comprising a sample suspected of containing the target molecule. Each of the electrodes comprises at least one target **probe**. A plurality of cells within the semiconductor substrate are selectively addressed to apply a stimulus to each of the electrodes to activate a predetermined redox active moiety that is associated with an electrode and to detect, by means of the electrodes, corresponding responses produced as a result of the activation of the redox active moieties. The magnitude of the corresponding responses indicates the presence or absence of the target molecule in the sample.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 6 OF 11 USPATFULL on STN
AN 2003:89469 USPATFULL
TI Detection of target analytes using particles and electrodes
IN Bamdad, Cynthia C., Sharon, MA, United States
Mucic, Robert C., Glendale, CA, United States
PA Clinical Micro Sensors, Inc., Pasadena, CA, United States (U.S. corporation)
PI US 6541617 B1 20030401
AI US 1999-428155 19991027 (9)
PRAI US 1998-105875P 19981027 (60)
DT Utility
FS GRANTED
EXNAM Primary Examiner: Whisenant, Ethan; Assistant Examiner: Lu, Frank
LREP Trecartin, Richard F., Silva, Robin M., Flehr Hohbach Test Albritton & Herbert LLP
CLMN Number of Claims: 13
ECL Exemplary Claim: 1
DRWN 23 Drawing Figure(s); 10 Drawing Page(s)
LN.CNT 4026

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention relates to the use of particles comprising binding ligands and electron transfer moieties (ETMs). Upon binding of a target analyte, a particle and a reporter composition are associated and transported to an electrode surface. The ETMs are then detected, allowing the presence or absence of the target analyte to be determined.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 7 OF 11 USPATFULL on STN
AN 2002:226183 USPATFULL
TI Target analyte detection using asymmetrical self-assembled monolayers
IN Tao, Chunlin, Beverly Hills, CA, UNITED STATES
Yu, Changjun, Pasadena, CA, UNITED STATES
PA Clinical Micro Sensors (U.S. corporation)
PI US 2002121314 A1 20020905
AI US 2001-847113 A1 20010501 (9)
RLI Continuation-in-part of Ser. No. US 2000-626096, filed on 26 Jul 2000, PENDING
PRAI US 2000-201026P 20000501 (60)
DT Utility
FS APPLICATION
LREP ROBIN M. SILVA, ESQ., FLEHR HOHBACH TEST ALBRITTON & HERBERT LLP, Four Embarcadero Center, Suite 3400, San Francisco, CA, 94111-4187
CLMN Number of Claims: 44
ECL Exemplary Claim: 1
DRWN 25 Drawing Page(s)
LN.CNT 4312

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention relates to the use asymmetric monolayer forming

09567863

species and **electroconduit** forming species to detect target analytes.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 8 OF 11 USPATFULL on STN
AN 2002:148576 USPATFULL
TI Method for detecting nucleic acids
IN Makino, Yoshihiko, Saitama, JAPAN
Abe, Yoshihiko, Saitama, JAPAN
Ogawa, Masashi, Tokyo, JAPAN
Takagi, Makoto, Fukuoka, JAPAN
Takenaka, Shigeori, Fukuoka, JAPAN
Yamashita, Kenichi, Fukuoka, JAPAN
PI US 2002076717 A1 20020620
AI US 2001-887625 A1 20010622 (9)
PRAI JP 2000-187486 20000622
DT Utility
FS APPLICATION
LREP REED SMITH LLP, 375 Park Avenue, New York, NY, 10152
CLMN Number of Claims: 8
ECL Exemplary Claim: 1
DRWN 3 Drawing Page(s)
LN.CNT 552

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method of detecting nucleic acid fragments in plural samples is performed by the steps of: attaching an **electroconductive** label to nucleic acid fragments in one sample and attaching a different **electroconductive** label to nucleic acid fragments in another sample; preparing a mixture of these samples; spotting the mixture on an **electroconductive** microarray having plural electrodes onto which **probe** molecules complementary to the nucleic acid fragments are fixed, so that hybridization between the nucleic acid fragments and the **probe** molecules on the **electroconductive** microarray can proceed to form hybrid structures; applying to the electrode an electric potential corresponding to the oxidation-reduction potential of the former label and detecting on the electrode an electric current; applying to the electrode an electric potential corresponding to the oxidation-reduction potential of the latter label and detecting on the electrode an electric current; and comparing the electric current detected in the former detecting procedure and that detected in the latter detecting procedure.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 9 OF 11 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2001-159728 [16] WPIDS
DNN N2001-116364 DNC C2001-047562
TI Nucleic acids containing electron-transfer group, useful as labels in hybridization assays, e.g. for genotyping, allowing repeat analyses on a single surface.
DC B04 D16 S03
IN BLACKBURN, G; IRVINE, B D; TERBRUEGGEN, R H; UMEK, R M; VIELMETTER, J G; YU, C
PA (CLIN-N) CLINICAL MICRO SENSORS INC
CYC 94
PI WO 2001007665 A2 20010201 (200116)* EN 159p
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ
NL OA PT SD SE SL SZ TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM
DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC
LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE

SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
 AU 2000066104 A 20010213 (200128)
 EP 1218541 A2 20020703 (200251) EN
 R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT
 RO SE SI

JP 2004500033 W 20040108 (200410) 446p
 ADT WO 2001007665 A2 WO 2000-US20476 20000726; AU 2000066104 A AU 2000-66104
 20000726; EP 1218541 A2 EP 2000-953701 20000726, WO 2000-US20476 20000726;
 JP 2004500033 W WO 2000-US20476 20000726, JP 2001-512930 20000726
 FDT AU 2000066104 A Based on WO 2001007665; EP 1218541 A2 Based on WO
 2001007665; JP 2004500033 W Based on WO 2001007665
 PRAI US 2000-190259P 20000317; US 1999-145695P 19990726
 AN 2001-159728 [16] WPIDS
 AB WO 200107665 A UPAB: 20010323

NOVELTY - Composition (A) comprising two nucleic acids (I, II) each
 containing an electron-transfer group (ETM) having **different**
 redox **potentials**.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the
 following:

(1) composition (B) comprising a substrate having many covalently
 attached capture **probes** (CP) at individual array locations and
 many competitors (CM) each of which hybridizes to:

- (i) CP;
- (ii) one part of a capture extender **probe** (CEP) that
 consists of a part that hybridizes to one domain of a target sequence (TS)
 and a second part that hybridizes to CP; or
- (iii) one part of a label **probe** (LP) that consists of one
 part that hybridizes to a domain of TS and a second part comprising at
 least one ETM;
- (2) a method for generating a hybridization kinetics curve in an
 assay for TS;
- (3) a method for detecting TS using an array of CP covalently linked
 to a support;
- (4) a method for detecting TS by forming a complex, containing at
 least one ETM, between TS and CP, covalently attached to an electrode;
- (5) a method for identifying a nucleotide (nt) at a detection point
 in TS;
- (6) a surface comprising a self-assembled monolayer (SAM) that
 comprises at least one photocleavable species;
- (7) a surface comprising a SAM that consists of insulators and
electroconduit-forming species, other than conductive oligomers;
- (8) a method for detecting a target analyte using an electrode that
 includes either SAM-forming species including a capture binding ligand
 (CBL) or CBL itself; and
- (9) a method for covalently attaching ETM to nucleic acid.

USE - (A) are used for electronic detection of nucleic acids,
 especially of substitutions (mismatches) and single-nucleotide
 polymorphisms, e.g. for genotyping, monitoring gene expression (e.g. for
 drug testing), detecting bacteria and viruses, forensic fingerprinting,
 sequencing and detecting successful amplification.

ADVANTAGE - Repeat assays can be performed on a single surface or
 array, at different temperatures, allowing studies of hybridization
 kinetics and eliminating the need for a close match of melting points for
 all **probes** in the array. ETM-containing **probes** are
 very selective and sensitive, and may allow detection without removal of
 unbound **probe**, making them suitable for automated gene
probe assays.

Dwg.0/16

L5 ANSWER 10 OF 11 USPATFULL on STN
 AN 1998:25965 USPATFULL
 TI Method and apparatus for determining ocular gaze point of regard and

09567863

fixation duration
IN Smyth, Christopher C., Fallston, MD, United States
PA The United States of America as represented by the Secretary of the
Army, Washington, DC, United States (U.S. government)
PI US 5726916 19980310
AI US 1996-675330 19960627 (8)
DT Utility
FS Granted
EXNAM Primary Examiner: Trammell, James P.; Assistant Examiner: Shah, Kamini
S.
LREP Roberto, Muzio B., Clohan, Paul S.
CLMN Number of Claims: 6
ECL Exemplary Claim: 1
DRWN 7 Drawing Figure(s); 7 Drawing Page(s)
LN.CNT 1088
AB A method and apparatus for determining ocular gaze point of regard and
fixation duration utilizing Electrooculographic measurements and head
position and orientation data. The Electrooculographic (EOG) potentials
from an unipolar measuring configuration, are first amplified, filtered
and digitized. A computation scheme based on the mathematical relation
for the sum and **difference potentials** between
opposing electrodes placed about the eye is then used to compute ocular
orientation and amplifier gains and DC bias offset voltages. The sensor
system of the invention may be embedded in a neoprene holder for a
helmet mounted display; the holder fitting around the eyes like a set of
goggles, is against the face well out of the way of the natural field of
view. The invention is easily extended to the simultaneous tracking of
both eyes thereby allowing the measurement of the optical convergence
point in the user's three dimensional workspace either real or virtual.
The invention can be used as an eyetracker to control computerized
machinery by ocular gaze point of regard and fixation duration. For this
reason, the invention has potential applications to the aviation cockpit
during tasks demanding high visual and motor loading such as occur in
low level helicopter flight.

L5 ANSWER 11 OF 11 USPATFULL on STN
AN 97:71569 USPATFULL
TI Array substrate for a flat-display device including surge protection
circuits and short circuit line or lines
IN Hayashi, Hisaaki, Hyogo-ken, Japan
PA Kabushiki Kaisha Toshiba, Kawasaki, Japan (non-U.S. corporation)
PI US 5657139 19970812
AI US 1995-536130 19950929 (8)
PRAI JP 1994-236259 19940930
DT Utility
FS Granted
EXNAM Primary Examiner: Sikes, William L.; Assistant Examiner: Trice, Ron
LREP Cushman, Darby & Cushman
CLMN Number of Claims: 14
ECL Exemplary Claim: 10
DRWN 7 Drawing Figure(s); 4 Drawing Page(s)
LN.CNT 737
AB An array substrate for a flat-panel display device includes a glass
substrate, a display section formed on the glass substrate and having
pixel **electrodes arrayed** in row and column
directions, pixel TFTs connected to the pixel electrodes for controlling
the potentials thereof, and wiring lines including scan lines and signal
lines which are connected to the pixel TFTs and extending to a removable
area outside the display section, a short-circuit line formed in the
removable area, surge-protection switch circuits formed in the removable
area and connected between the short-circuit line and the wiring lines,

09567863

each for electrically connecting a corresponding one of the wiring lines to the short-circuit line when the potential of the corresponding wiring line exceeds a predetermined level, and test pads formed in the removable area and connected to the wiring lines. Particularly, the test pads and the surge-protection switch circuits are located on one side of the display section in each of the row and column directions, and adjacent ones of the test pads are set apart from a periphery of the glass substrate by different distances.

09567863

=> s electrocond? (10a) label?

L7 43 ELECTROCOND? (10A) LABEL?

=> s l7 and array? (10a) electrode?

L8 1 L7 AND ARRAY? (10A) ELECTRODE?

=> sd l8 bib

SD IS NOT A RECOGNIZED COMMAND

The previous command name entered was not recognized by the system.

For a list of commands available to you in the current file, enter

"HELP COMMANDS" at an arrow prompt (=>).

=> d l8 bib abs

L8 ANSWER 1 OF 1 USPATFULL on STN

AN 2002:148576 USPATFULL

TI Method for detecting nucleic acids

IN Makino, Yoshihiko, Saitama, JAPAN

Abe, Yoshihiko, Saitama, JAPAN

Ogawa, Masashi, Tokyo, JAPAN

Takagi, Makoto, Fukuoka, JAPAN

Takenaka, Shigeori, Fukuoka, JAPAN

Yamashita, Kenichi, Fukuoka, JAPAN

PI US 2002076717 A1 20020620

AI US 2001-887625 A1 20010622 (9)

PRAI JP 2000-187486 20000622

DT Utility

FS APPLICATION

LREP REED SMITH LLP, 375 Park Avenue, New York, NY, 10152

CLMN Number of Claims: 8

ECL Exemplary Claim: 1

DRWN 3 Drawing Page(s)

LN.CNT 552

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method of detecting nucleic acid fragments in plural samples is performed by the steps of: attaching an **electroconductive label** to nucleic acid fragments in one sample and attaching a different **electroconductive label** to nucleic acid fragments in another sample; preparing a mixture of these samples; spotting the mixture on an electroconductive microarray having plural electrodes onto which probe molecules complementary to the nucleic acid fragments are fixed, so that hybridization between the nucleic acid fragments and the probe molecules on the electroconductive microarray can proceed to form hybrid structures; applying to the electrode an electric potential corresponding to the oxidation-reduction potential of the former label and detecting on the electrode an electric current; applying to the electrode an electric potential corresponding to the oxidation-reduction potential of the latter label and detecting on the electrode an electric current; and comparing the electric current detected in the former detecting procedure and that detected in the latter detecting procedure.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=>